

(Currently Amended) 15. A resistor array comprising:

a plurality of resistors each comprising a metallic bulk base;

5 a plurality of electrodes composed of conductive material
disposed directly on said metallic bulk base for connecting
each of said resistors to external circuits wherein said
metallic bulk base constituting a single layer electrically
10 conductive medium between every two of said electrodes
having a lithographically-defined precisely controlled
distance for providing a precisely defined resistance for each
of said resistors.

(Currently Amended) 16. The A resistor array ~~of claim 15~~ further
15 comprising:

a plurality of resistors each comprising a metallic bulk base;

a plurality of electrodes composed of conductive material
disposed directly on said metallic bulk base for connecting
20 each of said resistors to external circuits wherein said
metallic bulk base between every two of said electrodes
having a precisely controlled distance for providing a
precisely defined resistance for each of said resistors

25 at least an electrode layer of a different conductive material
disposed on each of said electrodes.

(Previously Presented) 17. The resistor array of claim 15 further comprising:

5 a plurality of scribing lines disposed between said resistors for scribing said resistor array into a plurality of resistors each comprising at least two electrodes for connecting each of said resistors to external circuits.

(Currently Amended) 18. The resistor array of claim 15 wherein:

10 said metallic bulk base constituting said single layer electrically conductive medium comprising a nickel-copper alloy.

(Previously Presented) 19. The resistor array of claim 15 wherein:

15 each of said electrodes further comprises a copper layer and a tin-lead alloy layer.

(Previously Presented) 20. The resistor array of claim 15 wherein:

20 said precisely defined resistance for each of said resistors ranging approximately from one milli-ohm to one ohm.

(Currently Amended) 21. The resistor array of claim 15 wherein:

25 said metallic bulk base constituting said single layer electrically conductive medium of each of said plurality of resistors having a thickness ranging approximately from 0.05 to 0.5 millimeters and a length ranging approximately from 1.0 to 7.0 millimeters.

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(Previously Presented) 22. The resistor array of claim 15 wherein:

5 each of said plurality of electrodes disposed directly on said metallic bulk base having a width and length ranging approximately from 0.1 to 3.2 millimeter, a height ranging approximately from 0.05 to 0.5 millimeters and distance ranging approximately from 0.4 to 6.2 millimeters between every two electrode columns.

10 (Currently Amended) 23. A resistor array comprising:

a plurality of resistors each comprising a metallic bulk base;

15 a plurality of column-shaped electroplated electrodes disposed directly on said metallic bulk base for connecting each of said resistors to external circuits and wherein said metallic bulk base constituting a single layer electrically conductive medium having a precisely controlled distance between every two of said electrodes for providing a
20 lithographically-defined precisely defined resistance for each of said resistors.

(Previously Presented) 24. The resistor array of claim 23 further comprising:

25 a plurality of scribing lines disposed between said resistors for scribing said resistor array into a plurality of resistors each comprising at least two electrodes for connecting each of said resistors to external circuits.

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(Currently Amended) 25. The resistor array of claim 23 wherein:

5 said metallic bulk base constituting said single layer
 electrically conductive medium comprising a nickel-copper
 alloy.

(Previously Presented) 26. The resistor array of claim 23 wherein:

10 each of said plurality of column-shaped electroplated
 electrodes disposed directly on said metallic bulk base
 further comprises a copper layer and a tin-lead alloy layer.

(Previously Presented) 27. The resistor array of claim 23 wherein:

15 said precisely defined resistance for each of said resistors
 ranging approximately from one milli-ohm to one ohm.

(Previously Presented) 28. The resistor array of claim 23 wherein:

20 said metallic bulk base of each of said plurality of resistors
 having a thickness ranging approximately from 0.05 to 0.5
 millimeters and a length ranging approximately from 1.0 to
 7.0 millimeters.

25 (Previously Presented) 29. The resistor array of claim 23 wherein:

 each of said plurality of column-shaped electrodes disposed
 directly on said metallic bulk base having a width and length
 ranging approximately from 0.1 to 3.2 millimeter, a height
30 ranging approximately from 0.05 to 0.5 millimeters and distance
 ranging approximately from 0.4 to 6.2 millimeters between every
 two electrodes.

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(Currently Amended) 30. A resistor comprising:

a metallic bulk base; and

5 at least two electrodes composed of a conductive material
disposed directly on said metallic bulk base for connecting
said resistor to external circuits wherein said metallic bulk
base constituting a single layer electrically conductive
medium and having a lithographically-defined precisely
10 controlled distance between said two electrodes for
providing a precisely defined resistance for said resistor.

(Currently Amended) 31. ~~The A resistor of claim 26 further~~ comprising:

15 a metallic bulk base;

at least two electrodes composed of a conductive material
disposed directly on said metallic bulk base for connecting
said resistor to external circuits and having a precisely
20 controlled distance between said two electrodes for
providing a precisely defined resistance for said resistor; and

at least an electrode layer of a different conductive material
disposed on each of said electrodes.
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(Currently Amended) 32. The resistor of claim 30 wherein:

said metallic bulk base constituting said single layer
electrically conductive medium comprising a nickel-copper
30 alloy.

(Previously Presented) 33. The resistor of claim 30 wherein:

each of said electrodes further comprises a copper layer and
a tin-lead alloy layer.

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(Previously Presented) 34. The resistor of claim 30 wherein:

said precisely defined resistance for said resistor ranging
approximately from one milli-ohm to one ohm.

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(Previously Presented) 35. The resistor of claim 30 wherein:

said metallic bulk base of said resistor having a thickness
ranging approximately from 0.05 to 0.5 millimeters and a
length ranging approximately from 1.0 to 7.0 millimeters.

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(Previously Presented) 36. The resistor of claim 30 wherein:

each of said electrodes disposed directly on said metallic
bulk base having a width and length ranging approximately
from 0.1 to 3.2 millimeter, a height ranging approximately
from 0.05 to 0.5 millimeters and distance ranging
approximately from 0.4 to 6.2 millimeters between every two
electrode columns.

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(Currently Amended) 37. A resistor comprising:

a metallic bulk base; and

5 a least two column-shaped electroplated electrodes disposed
directly on said metallic bulk base for connecting said
resistor to external circuits wherein said metallic bulk base
constituting a single layer electrically conductive medium
10 and having a lithographically-defined precisely controlled
distance between said electrodes for providing a precisely
defined resistance for said resistor.

(Previously Presented) 38. The resistor of claim 37 wherein:

15 said metallic bulk base comprising a nickel-copper alloy.

(Previously Presented) 39. The resistor of claim 37 wherein:

20 each of said column-shaped electroplated electrodes further
comprises a copper layer and a tin-lead alloy layer.

(Previously Presented) 40. The resistor of claim 37 wherein:

25 said precisely defined resistance for said resistor ranging
approximately from one milli-ohm to one ohm.

(Previously Presented) 41. The resistor of claim 37 wherein:

30 said metallic bulk base of said resistor having a thickness
ranging approximately from 0.05 to 0.5 millimeters and a
length ranging approximately from 1.0 to 7.0 millimeters.

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(Previously Presented) 42. The resistor of claim 37 wherein:

5 each of said column-shaped electrodes disposed directly on said
metallic bulk base having a width and length ranging
approximately from 0.1 to 3.2 millimeter, a height ranging
approximately from 0.05 to 0.5 millimeters and distance ranging
approximately from 0.4 to 6.2 millimeters between every two
electrodes.

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